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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,618	11/29/2001	Makoto Sato	0171-0800P-SP	2287

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EXAMINER
HU, HENRY S

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 03/12/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/995,618	Applicant(s) SATO ET AL.
	Examiner Henry S. Hu	Art Unit 1713

-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☒ Claim(s) *1* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 10 at line 10, a typing error on the right side of structure no. 3, the end group should be changed to $-Si(OSi(Me)_2\text{-}H)_3$ so that every silicon atom has four bonds.

Appropriate correction is required.

Claim Objections

2. Claims 1 is objected to because of the following informalities:

On Claim 1-(C) at lines 2-3, recitation of "two hydrogen atoms each bound to a silicon atom in a molecule" should be changed to "two **Si-H groups** each **bonded** to a silicon atom in a molecule" to be consistent with the disclosure on the abstract at line 7-8 as well as the chemical structures shown in specification on page 10 at line 1-15. Only Si-H group is disclosed, while the Applicant has never mentioned the use of SiH_2 group.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarumi et al. (US 5,837,774) in view of Barthel et al. (US 5,591,797).

The limitation of parent Claim 1 of the present invention relates to a curable fluoropolyether base rubber composition comprising:

(A) 100 phr of a linear fluoropolyether compound containing at least two alkenyl groups in a molecule and having a perfluoroalkyl ether structure in its backbone.

(B) 10-40 phr of a surface-hydrophobized silica filler having a specific surface area of at least 100 m^2/g and a vinyl content of 1 x 10^{-3} to 2 x 10^{-2} mol/100 g.

(C) an effective amount of an organosilicon compound having at ***least two Si-H groups each bonded to a silicon atom in a molecule****, and*

(D) a catalytic amount of a hydrosilylation catalyst.

See other limitations of Claim 2.

6. Regarding the limitation of parent Claim 1, Tarumi et al. disclose **a curable fluoropolyether rubber composition** comprising (a) a straight chain fluoro-polyether, (b) a polytetrafluoroethylene, (c) an organohydrogenpolysiloxane, and (d) a hydrosilylation reaction catalyst (abstract, line 1-8; column 1, line 39 – column 5, line 30; column 7, line 4 – column 9, line 43), wherein the **components (a), (c) and (d) read on the components (A), (C) and (D) in claimed limitation**. Tarumi et al. further disclose specifically in Example 1 the amount used for each component to prepare the composition (column 9, line 65 – column 10, line 35). Tarumi et al. furthermore disclose that the component (b) are **telomers prepared by polymerization of tetrafluoro-ethylene in the presence of a telogen selected from trichlorotrifluoroethane and various telogens** (column 6, line 44-59).

7. The reference is **silent about using surface-hydrophobized silica as filler**. Barthel et al. teach the preparation of surface-hydrophobized silica by rendering hydrophobic with an organosilicon compound to have a BET specific surface area of 40-450 m^2/g (column 3, line 49 – column 4, line 58; abstract, line 1-2) with formulas shown on column 3 at line 53 and 67 wherein the **R group may include alkenyl radicals such as vinyl or allyl** which the amount of vinyl content is overlapping the claimed limitation by examiner's calculation from example 2. Barthel's organosilicon compounds are specifically disclosed on column 4, line 42-58. The advantage is such obtained silica can be useful as a filler in a curable silicon rubber material composition comprising components such as Barthel's (I), (II), (III) and (IV) (column 5, line 34-42) since the **silica is a heat stabilizer** and at the same time **an actively reinforcing filler and can**

therefore be homogeneously mixed into the silicon rubber material (column 2, line 8-14).

8. In light of the fact that components **(II), (III) and (IV) in Barthel's composition reads on components (A), (C) and (D) in Tarumi's composition in view of both chemical structure and functionality,** one having ordinary skill in the art would have found it obvious to **modify Tarumi's composition by including surface-hydrophobized and alkenyl-containing silica as a filler as taught by Barthel, with three advantages as such a silica addition will reinforce and can be homogeneously mixed in the silicon rubber composition, and still keep the co-polymerization with other component at a high degree and efficiency due to the existence of alkenyl group in the surface of silica, thereby a more homogeneous mixture can be obtained.**

9. Regarding Claim 2, the **component (a)** disclosed by Tarumi is a straight chain fluoropolyether, its detailed specification shown in column 2, line 5 – column 6, line 31 **contains all the claimed limitation of Claim 2**.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a curable fluoropolyether base rubber composition comprising: a linear fluoropolyether compound, surface-

hydrophobized silica filler, a Si-H containing organosilicon compound and a hydrosilylation catalyst:

US Patent No. 5,358,996 to Takago et al. disclose a room temperature **curable polyether** composition comprising a polyether compound having **silyl-end groups containing hydroxyl, alkoxyl, alkenyloxy, acyloxy, a ketoximate, an amido, an aminoxy or a mercapto group** (abstract, line 1-30). However, Takago et al. fail to teach using a perfluoropolyether structure on backbone of the polyether compound. Takago et al. further fail to teach using hydrosilylation reaction with catalyst to make a curable composition.

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (703) 305-4918. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The fax number for the organization where this application or proceeding is assigned is (703) 746-9051. Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.

H.Hu

Henry S. Hu

March 3, 2003

DAVID W. WU
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